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Casein, from skim milk, used in making buttons and in various industries, and milk sugar, are valuable by-products in the dairy industry. Sugar is not the only useful product from the sugar-cane, for the final molasses residue known as "black-strap" is a valuable stock food. The spent bone black used in the purification of the cane juice is used for making shoe blacking, and from the "Bagasse" or crushed cane a very useful insulating building board or an insulating material may be made. In the roasting of coffee, the alkaloid caffein in small quantities is driven off and collects in the flues. This is later purified and is used in various popular carbonated beverages.

This list is only suggestive, for there are numerous other by-products that have been or may be utilized, and it is the task of the chemist and the food manufacturer, to practically apply their knowledge to our food supply, and thus effect a great saving.

Some Needed Reforms in Packing of Food Products

Paper 4 of tthe 1923 Meeting at Lawrence

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To one who has been associated, almost from the beginning, with the reforms that have been made in the campaign for furnishing pure foods to the consumer, it is interesting to watch the evolution of a label to the point where it tells "the truth, the whole truth and nothing but the truth". This label is coming and in fact has almost arrived.

Previous to 1906, when the Federal Food and Drugs Act was passed it was evidently not considered "good form" for a label on a food container to tell the truth. A "strictly pure" spice meant cracker dust flavored with pepper, allspice, or cloves, as the case may be. "Pure Vermont maple syrup" with an elaborate cut of a "Sugar Bush" meant cane sugar flavored with an extract from maple bark and corn cobs. "Grape crystal baking powder" with a cut of a luscious bunch of grapes (because tartaric acid is made from the argol of grapes) meant just an ordinary alum baking powder. "Pure strawberry jam" meant a mixture of some fruit juices, perhaps that of the apple, colored with a coal tar dye, sweetened with glucose rather than cane sugar, flavored with synethic flavors made in the chemical laboratory, preserved with sodium sulphite and transformed into strawberry jam by the simple admixture of a sufficient quantity of grass seed. The so-called "condensed cream" was concentrated skim milk. "Hamburg steak" was made of the ancient scraps of beef left in the market, kept in a state of perennial youth, not by the use of the lip-stick, so effectually used in some circles at present, but by an abundant sprinkling of the preservative sodium sulphite, which makes steak look red and fresh. Oysters were "fatted up" by being soaked in fresh water: "Genuine olive oil from Lucca, Italy," with an Italian label, was manufactured in New York from cotton seed oil. These are but examples of the condition of food markets at that date, but times have changed and now the manufacturer must take the consumer into his confidence, and tell him what the package contains. Even the elaborate pictures which, while not stating in so many words an untruth, psychologically conveyed a false impression, have been discarded. Foods that were adulterated with injurious or poisonous substances were the first to go in the cleaning up of the store or the wholesale house or the pantry, because public opinion would not stand for that, however much the people were willing to wink at prevarications on the labels.

Then came the trouble with the weight of food packages. It was persistently stated that it would be unfair to the manufacturers to require the actual weight to be stated on the package. It was not until the passage of the Federal Net Weight Law, that the actual weight of the contents of the package was unblushingly told to the consumer. Even then, there was a disposition to evade the law, as for instance in the dairy industry. Here the butter factories began to put on the market a package of butter weighing fourteen or fifteen ounces. If the consumer complained that he was not getting a pound, the dealer replied "No, we did not sell you a pound, that was only a carton", and "you will notice that the weight is stamped upon it". It was nevertheless a fraud on the consumer for the fifteen ounce carton was what was supplied when a pound of butter was ordered. This practice became so common that legislation was required to stop it, and now our package contains a pound of butter.

But the trouble was not over even then, for water has always been cheaper than butter fat and so the makers allowed more than the legal maximum, 15.99% of water to remain in the butter after it was worked. Not until this kind of butter was declared to be adulterated and, as such, liable to a special revenue tax, was that game stopped.

We are still confronted with many labels that are just within the law. They do not really make wrong statements but leave the consumer to get a wrong impression. One by one, these labels are being discarded.

There is still one of these abuses that should be corrected: that is the selling of packages of food weighing less than a pound, but with the label bearing truthful statement as to the weight of the contents. This is not a carton exactly, but it is an arrangement by an additional six to ten per cent may be made on the sale. To illustrate: why does the packer of a variety of California raisins put on the market a fifteen ounce package on which it is stated that fifteen ounces are contained, instead of a good full honest pound? Psychologically, the short weight package goes. It takes the place of the pound in the order that you 'phone to the grocery. The price paid is no doubt as much as you would pay for a pound. The public is mulcted one ounce of raisins and the packer gets one hundred thirty-three more packages than he otherwise would out of a ton of raisins. Some other common package foods weighing less than the pound or aliquot part of a pound, are: seedless raisins, fifteen ounces; currants, seven or eleven ounces; evaporated milk, fifteen ounces; condensed milk, another brand, fifteen ounces; macaroni, seven ounces; another brand of macaroni, seven ounces; baked beans, eleven ounces; and so on. The same tendency to pack liquid food products in less than ½ pints, pints, or quarts, exists.

It is very satisfactory to note that probably nine-tenths of the packages containing foods are of full weight or an aliquot part of the full pound. It is hoped that public opinion will press so hard on a few of these manufacturers that are still not in line, that they will join the majority. Some packers have tried to avoid the embarrassment that follows the discovery that their packages are not up to full weight, especially in foods that are liable to lose weight in drying, by the statement, "this package was of full pound weight when packed", but that is rather a dangerous statement, certainly liable to lead to complications. A reasonable variation from the stated weight or measure of products is allowable, but this variation should be as often above as below the quantity stated.

Water Solubility an Economic Force

Paper 26 of thte 1925 Meeting at Manhattan

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The geologist will tell you that erosion is one of the great forces that has been used to shape the earth into its present form; that it has entirely transformed the surface; that it has cut out mighty valleys, has scoured away mountain ranges, covered the plains with fertile soil and extended the surface of the continents far out into the sea. This is all true; the water-borne detritus has accomplished wonders. Without the aid of this erosion but a small portion of the surface of the earth would be habitable—the waving fields of grain would never have been possible.

While erosion in the geologic ages long past, was doing this, something else was going on, for the agent that did this stupendous work, was also a solvent. Water is not by any means the only solvent, although it has been called "the universal solvent", but it is possessed of this property to such a wonderful extent that the secondary results of the erosion are of the utmost importance.

In the process known as "levigation" the artisan reduces his material to an impalpable powder by grinding with water. In this way the graphite and the clay used in making the different grades of lead pencils are ground with water, day after day in a kind of mortar, to bring them to the desired condition of impalpable dust. So also, the rocks and gravel and sand have been ground together, in this process of erosion, as they have been hustled down the mountain sides, and as the pieces become smaller, the surface of